Listed Waterbody: Corralitos Creek

Listed Condition: Fecal Coliform

Designated Beneficial Uses[1]:
MUN, AGR, IND, GWR, REC1, REC2, WILD, COLD, WARM, MIGR, SPWN, COMM.

Watershed Location: Santa Cruz County
Year added to California's CWA Section 303(d) List of Impaired Waters - 2002

Preliminary Schedule for **Corralitos Creek – Fecal coliform** Impairment Investigation project

Task	Completion Date	Notes
Project Definition	June 2003	Complete
Project Plan	February 2004	*Active*
Data Collection and Analysis	PrgrsReport-June2005 Final - October 2005	* contact staff to submit data
Preliminary Project Report: draft TMDL	March 2006	
Project Report	August 2006	
Regulatory Action	May 2007	

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Problem Background:

Basis for listing: CCAMP took 13 water quality (WQ) samples at the COR monitoring station (COR – Corralitos at confluence of Pajaro River) between December 1997 and December 1998 (see attached Exhibit A - CCAMP Data Used for Listing). Four of the 13 samples violated water quality objectives for Contact Recreation. The water contact recreation (REC-1) beneficial use requires the most stringent water quality objective as contained in the *Water Quality Control Plan, Central Coast Region* (Basin Plan):

> "Fecal coliform concentration, based on a minimum of not less than five samples for any 30-day period, shall not exceed a log mean of 200/100 ml, nor shall more than ten percent of total samples during any 30-day period exceed 400/100 ml."

Current information: The WQ data used for this listing is 5-years old and recent data for this site or an adjacent site is not available. However, the Santa Cruz County Department of Environmental Health provided current WQ data for 2 upstream stations. The county data indicates that WQ objectives are being attained (see attached Exhibit B – Santa Cruz County Data for Corralitos below Browns Valley Bridge and Exhibit C - Santa Cruz County Data for Corralitos at Rider Cr., located 6-miles and 7-miles upstream, respectively). Based on conversations with the City of Watsonville water quality control staff, WQ monitoring is more frequently performed in the upper reaches of the Corralitos Creek watershed because the City manages this water resource for various uses (municipal, agricultural, industrial, groundwater recharge, etc.) City staff mentioned that homeless encampments might have co-existed in location and time with the CCAMP sampling events and that these encampments are the potential source of fecal coliform in the lower reach.

[1] MUN-Municipal and Domestic Supply, AGR-Agricultural Supply, IND-Industrial Supply, GWR-Ground Water Recharge, REC-1-Water Contact Recreation, REC-2-Non-Contact Water Recreation, WILD-Wildlife Habitat, COLD-Cold Freshwater Habitat, WARM-Warm Freshwater Habitat, MIGR-Migration of Aquatic Organisms, SPWN-Spawning, Reproduction and/or Early Development, COMM-Commercial and Sport Fishing.

What next: It is evident that elevated levels of fecal coliform existed in the lowest reach of Corralitos Creek (at the Pajaro River confluence). Levels of fecal coliform were above the standard (fecal coliform Basin Plan standard for REC-1). The question for this listing is, what are the current levels and potential sources of fecal coliform in Corralitos Creek between the CCAMP monitoring station and the County of Santa Cruz monitoring stations located upstream?

Land use adjacent to the CCAMP monitoring site on lower Corralitos Creek is primarily urban, with little to no irrigated agricultural lands nearby. Therefore this project will not directly benefit from the Region-wide Bacteria Source Analysis in Irrigated Agricultural Areas project that is being proposed separately. Therefore, results of additional monitoring information is required to:

1) Determine if fecal coliform levels currently exceed WQ objectives; and,
2) Determine the source of fecal coliform via source tracking (DNA ribotyping analysis).

Regional Board staff believes more water quality data is necessary to determine if and to what extent water quality is impaired. It is not known how far upstream from CCAMP monitoring station COR that this impairment exists nor to what extent the City of Watsonville is contributing to any impairment. Therefore, staff will require the City of Watsonville to participate in further defining the extent and sources of pathogens. DNA analysis may also be useful to further determine sources.

Phase 3. Data Collection and Analysis and Revised Problem Statement

Who	Regional Board (RB) staff – project lead scientist Stakeholders- Review Monitoring Plan (if performed) and data collection report to provide technical assistance
Action Steps & Schedule	• More monitoring is required by both the City of Watsonville (within the city limits) and Santa Cruz county (upstream of Watsonville city limits). DNA analysis may be considered necessary to further clarify sources. Three sites are proposed to identify bacteria sources. The three sites are necessary to define the source(s) that occur between the County stations (6-miles upstream of the Corralitos/Pajaro confluence) and the lowest segment of Corralitos Creek at the Pajaro River confluence. The three proposed sites are; 1) Santa Cruz county station to be located upstream of Watsonville city limits; 2) within Watsonville city limits and located midway between the upstream county station and the downstream confluence of Corralitos/Pajaro; and, 3) located on Corralitos Creek before Pajaro River confluence (within city jurisdiction). o July 2004 – August 2004: Develop and require Monitoring Plan (of City and/or County) to investigate whether the problem extends north of the City's jurisdiction (and into County jurisdiction) or is solely within the City's limits. o September 2004-June 2005: Oversee implementation of Monitoring Plan and submittal of results. Prepare draft Data Collection Progress Report. • July 2005 - October 2005: oversee remaining monitoring plan, Prepare Data Collection and Analysis Report and Revised Problem Statement. This report will present data collected from current and former monitoring efforts by the City, County, Regional Board, and CCAMP. This report will document water quality conditions.
Cost (PY & $)	*Staff Resources:* for FY 2004-05: 0.15 PY and for FY 2005-06: 0.1 PY *Contract Resources:* = None *Other:* None
Issues	The Proposition 13 Grant is not focusing on this water body.

Phase 4. Preliminary Project Report: TMDL

Who	Regional Board staff – project lead scientist Stakeholders – Provide Technical Advice
Action Steps & Schedule	• November 2005 – January 2006: Perform source analysis relating locations of target exceedences to determine probable pathogen sources causing exceedences; complete Source Analysis (may include GIS analysis to determine land uses in watershed) • February 2006- March 2006: Summarize Numeric Targets and describe Source Analysis along with other pertinent items in written Preliminary Project TMDL Report.
Cost (PY & $)	*Staff Resources:* for FY 2005-06: 0.2 PY *Contract Resources:*
Issues	

Phase 5: Regulatory Action Selection: Prepare Project Report

Who	Regional Board staff: project lead scientist Stakeholders: Stakeholder will review Preliminary Project Report
Action Steps & Schedule	• April 2006: Develop a draft Project Report with TMDL, allocations and corrective measures necessary to attain compliance with water quality standards. This report will include an implementation and monitoring plan. • May 2006 - July 2006: Send to Stakeholders for technical advice. Consider stakeholder comments and revise report if appropriate. • August 2006: Prepare a final Project Report, including TMDL, allocations, implementation and monitoring plan; Prepare other documents necessary for proposed regulatory action (e.g. resolution, CEQA documents, etc).
Cost (PY & $)	*Staff Resources:* for FY 2005-06: 0.1 PY for FY 2006-07: 0.2 PY
Issues	

Phase 6. Regulatory Action(s):

Who	Regional Board staff – project lead scientist Stakeholders: routine public comment period(s) as appropriate for recommended Regional Board action
Action Steps & Schedule	• September 2006-December 2006: Obtain Scientific Peer Review (and other legal or technical review) and prepare response to comments. • January 2007-May 2007: Prepare documents for regulatory approval and present to Regional Board for Action
Cost (PY & $)	*Staff Resources:* for FY 2006-07: 0.2 PY for Staff resources to prepare documents (e.g. CEQA) and present to Regional Board.
Issues	None at this time.

Potential Future Activities (as needed)

Budget and Schedule Uncertainties:

Budget: short-term:

Long-term:

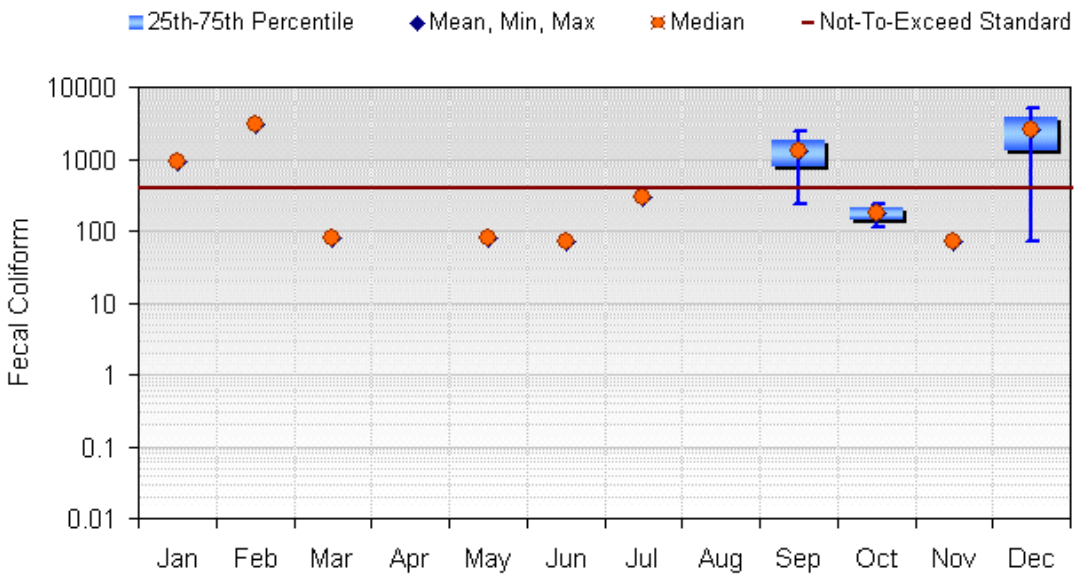
Schedule:

Exhibit A - CCAMP Data Used for Listing

Use Log-Scale | Selected Analysis Dataset | Standard Type

Refresh ▶ | 2: Corralitos CCAMP COR - Fecal Coliform | Not-To-Exceed

Standard-Exceedence Assessment



Summary Statistics (Data: 12/18/1997 to 12/16/1998)								
Month	**Mean**	**Median**	**Min**	**Max**	**25th**	**75th**	**XS:Count**	**XS%**
Jan	900	900	900	900	900	900	1:1	100%
Feb	3000	3000	3000	3000	3000	3000	1:1	100%
Mar	80	80	80	80	80	80	0:1	0%
Apr	0	0	0	0	0	0	0:0	n/a
May	80	80	80	80	80	80	0:1	0%
Jun	70	70	70	70	70	70	0:1	0%
Jul	300	300	300	300	300	300	0:1	0%
Aug	0	0	0	0	0	0	0:0	n/a
Sep	1320	1320	240	2400	780	1860	1:2	50%
Oct	175	175	110	240	143	208	0:2	0%
Nov	70	70	70	70	70	70	0:1	0%
Dec	2535	2535	70	5000	1303	3768	1:2	50%
All Data	**966**	**240**	**70**	**5000**	**80**	**900**	**4:13**	**31%**

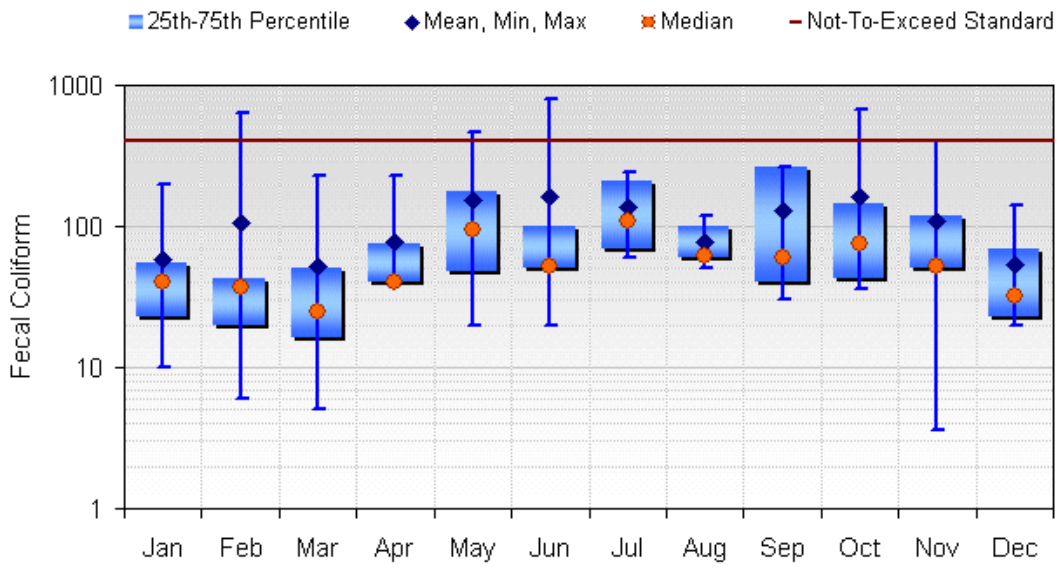
Table of Exceedences (Data: 12/18/1997 to 12/16/1998)					
Num	**Exceedence Description**	**Value**	**Criteria**	**XS-Amt**	**%XS**
1	12/18/1997 > 10% Limit in 1 30-day set	5000	400	4600	1250%
2	1/19/1998 > 10% Limit in 1 30-day set	900	400	500	225%
3	2/19/1998 > 10% Limit in 1 30-day set	3000	400	2600	750%
4	9/30/1998 > 10% Limit in 2 30-day sets	2400	400	2000	600%

Exhibit B – Santa Cruz County Data for Corralitos below Browns Valley Bridge

Use Log-Scale | Selected Analysis Dataset | Standard Type

Refresh ▶ | 18: Corralitos Blw Browns-SC County - Fecal Coliform | Not-To-Exceed

Standard-Exceedence Assessment



Summary Statistics (Data: 3/17/1987 to 3/8/2004)								
Month	**Mean**	**Median**	**Min**	**Max**	**25th**	**75th**	**XS:Count**	**XS%**
Jan	58	40	10	200	23	55	0:7	0%
Feb	106	38	6	640	20	43	1:8	13%
Mar	52	25	5	230	16	50	0:9	0%
Apr	78	40	40	231	40	76	0:7	0%
May	152	95	20	460	48	176	1:8	13%
Jun	160	52	20	800	50	100	1:9	11%
Jul	137	110	60	240	70	210	0:6	0%
Aug	78	62	50	120	60	100	0:6	0%
Sep	130	60	30	260	40	260	0:5	0%
Oct	161	75	36	676	43	145	1:8	13%
Nov	108	52	4	402	50	120	1:9	11%
Dec	54	32	20	140	23	70	0:7	0%
All Data	**107**	**52**	**4**	**800**	**40**	**112**	**5:89**	**6%**

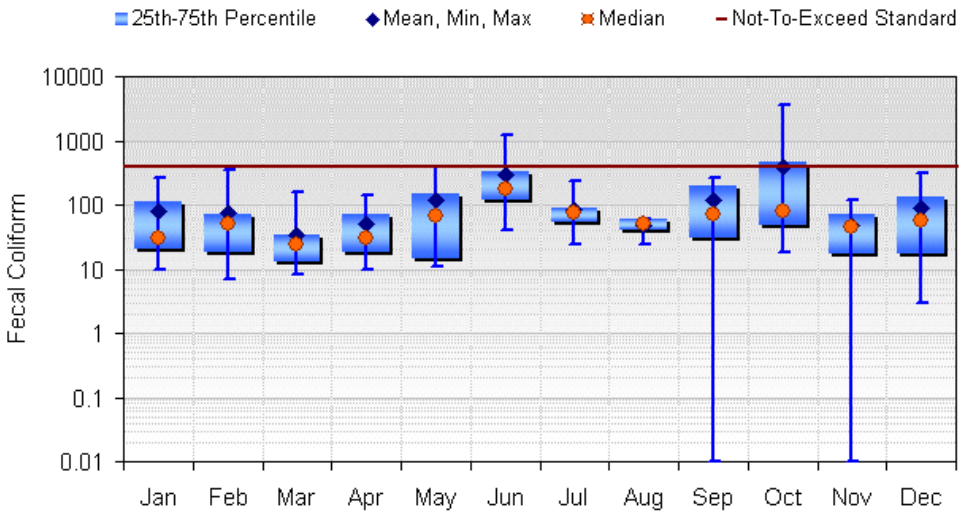
Table of Exceedences (Data: 3/17/1987 to 3/8/2004)					
Num	**Exceedence Description**	**Value**	**Criteria**	**XS-Amt**	**%XS**
1	11/8/1988 > 10% Limit in 1 30-day set	402	400	2	101%
2	10/7/1991 > 10% Limit in 1 30-day set	676	400	276	169%
3	6/29/1992 > 10% Limit in 1 30-day set	800	400	400	200%
4	5/17/1994 > 10% Limit in 4 30-day sets	460	400	60	115%
5	2/14/2000 > 10% Limit in 1 30-day set	640	400	240	160%

Exhibit C - Santa Cruz County Data for Corralitos at Rider Cr

Use Log-Scale | Selected Analysis Dataset | Standard Type

Refresh ▶ | 19: Corralitos at Rider-SC County - Fecal Coliform | Not-To-Exceed

Standard-Exceedence Assessment



Summary Statistics (Data: 11/19/1975 to 3/8/2004)								
Month	**Mean**	**Median**	**Min**	**Max**	**25th**	**75th**	**XS:Count**	**XS%**
Jan	79	30	10	260	20	110	0:13	0%
Feb	77	50	7	340	18	70	0:11	0%
Mar	34	24	8	160	13	34	0:14	0%
Apr	51	30	10	141	19	70	0:7	0%
May	120	68	11	398	14	149	0:8	0%
Jun	296	180	40	1220	120	335	3:11	27%
Jul	85	75	24	230	53	90	0:8	0%
Aug	49	50	24	60	41	60	0:10	0%
Sep	116	73	0	266	30	204	0:16	0%
Oct	396	80	18	3515	48	460	5:17	29%
Nov	48	44	0	120	18	72	0:15	0%
Dec	87	58	3	310	18	134	0:12	0%
All Data	**130**	**54**	**0**	**3515**	**21**	**128**	**8:142**	**6%**

Table of Exceedences (Data: 11/19/1975 to 3/8/2004)					
Num	**Exceedence Description**	**Value**	**Criteria**	**XS-Amt**	**%XS**
1	6/29/1976 > 10% Limit in 1 30-day set	475	400	75	119%
2	10/30/1989 > 10% Limit in 1 30-day set	644	400	244	161%
3	10/7/1991 > 10% Limit in 1 30-day set	460	400	60	115%
4	6/29/1992 > 10% Limit in 2 30-day sets	1220	400	820	305%
5	10/13/1993 > 10% Limit in 5 30-day sets	3515	400	3115	879%
6	6/14/2000 > 10% Limit in 1 30-day set	410	400	10	103%
7	10/9/2003 > 10% Limit in 1 30-day set	620	400	220	155%
8	10/14/2003 > 10% Limit in 2 30-day sets	620	400	220	155%